


A Systematic Review of Game Designs and Outcomes of Serious Games Targeting Different Groups in Language Learning

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ABSTRACT

As technology develops by leaps and bounds, serious games have been widely applied in all walks of life. However, little is known about the differences between serious games oriented to various groups. This current study thus attempted to compare and analyze the differences between serious games in language learning targeting typically developing individuals and those with autism spectrum disorders regarding game design and outcome and to figure out the challenges that individuals might face during the post-pandemic time. Related peer-reviewed papers (n=14) were chosen to utilize the preferred reporting items for systematic review and meta-analysis protocol (PRISMA-P). The findings showed that serious games with differently oriented groups differed in factors, aims, and models. Most of them were conducive to participants. It was also found that education designers should consider the well-being of teachers and learners and elements of COVID-19 while designing games. Implications for future studies were also discussed.

KEYWORDS

Game Design, Individuals With Autism Spectrum Disorders, Language Learning, Outcome, Post-Pandemic Period, Serious Game, Systematic Review, Typically Developing Individuals

INTRODUCTION

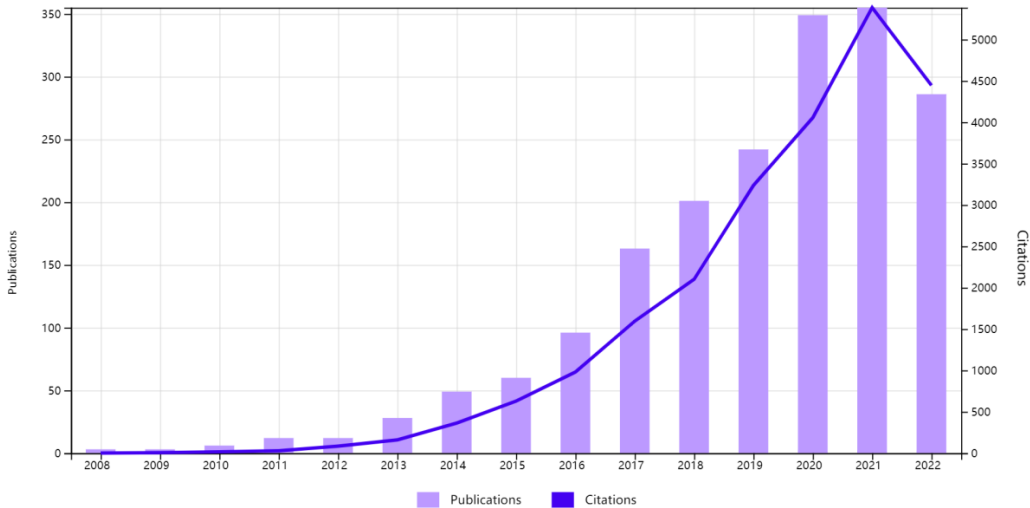
As technology grows by leaps and bounds, the concept of serious game has gained increasing popularity among people in different walks of life, such as education (Acquah & Katz, 2020; Yu et al., 2021) and healthcare (Kokol et al., 2020). Most importantly, recent years have witnessed the booming of the serious game. It was argued that a game with specific aims achieves cognitive and affective engagement more than motivating attitudinal or behavioral engagement (Ouariachi et al., 2018). As a result, serious game has become a prevalent issue discussed by scholars, and their increasing yearly outcomes are in Figure 1. It was a tendency for publications and citations of the keywords “serious game” searched on the Web of Science (WoS) on October 31, 2022.

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Figure 1. The tendency of publications and citations of “serious game” shown in Web of Science



Serious games were always conceived as novel learning and teaching tools that combined learning with entertainment. In terms of educational contexts, serious games could bring better performance and more gain of knowledge in the learners when compared with the traditional way of instruction (Giannakos, 2013) in that serious educational games were tools that possessed the ability to better-learning equality, exert positive impacts on behavior, cognition, and emotion of the learners (Daoudi, 2022). In terms of healthcare, a serious game could be applied to deal with people with autism spectrum disorders, which was available to enhance the ability to recognize and show fundamental emotions of people with autism spectrum disorders (Dantas & do Nascimento, 2022). It is thus of great significance to administrate a timely systematic review of serious game to improve the individual ability to language learning.

There are a considerable number of innovative studies on serious games concerning education and healthcare. For instance, a scoping review examined empirical evidence and the influences of digital game-based language learning (Hung et al., 2018). A study on the game-based invention for disorderly developed kids could be searched (Kokol et al., 2020). Some papers focused on the learning outcomes for different study sections (Acquah & Katz, 2020). A scoping review narrowed down its research field on language learning (Xu et al., 2020). However, the two disparate branches were never compared and discussed in the same systematic review together. Therefore, the importance of conducting a systematic review is again demonstrated. To complement this missing link, this study aimed to compare the difference between serious games of the two domains, namely, typically developing individuals and those with autism, in terms of game design and outcome, which differed from the studies mentioned above. The comparison between these studies and the current one is summarized in Table 1.

BACKGROUND

Serious Games in Educational Contexts

Recent years have witnessed a common phenomenon that serious games have been widely adopted in educational contexts (Yu et al., 2021), especially in language learning. Educational games, different from traditional instruction, could bring better performance and more gain of knowledge to the

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